

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
6 May 2004 (06.05.2004)

PCT

(10) International Publication Number  
**WO 2004/037429 A3**

- (51) International Patent Classification<sup>7</sup>: **B05B 1/28**
- (21) International Application Number:  
PCT/US2003/033422
- (22) International Filing Date: 22 October 2003 (22.10.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/420,085 22 October 2002 (22.10.2002) US  
60/441,575 21 January 2003 (21.01.2003) US  
60/462,124 10 April 2003 (10.04.2003) US
- (71) Applicant (for all designated States except US): **GRACO MINNESOTA INC.** [US/US]; 60 11th Ave. N.E., Minneapolis, MN 55413 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **ZITTEL, Douglas**

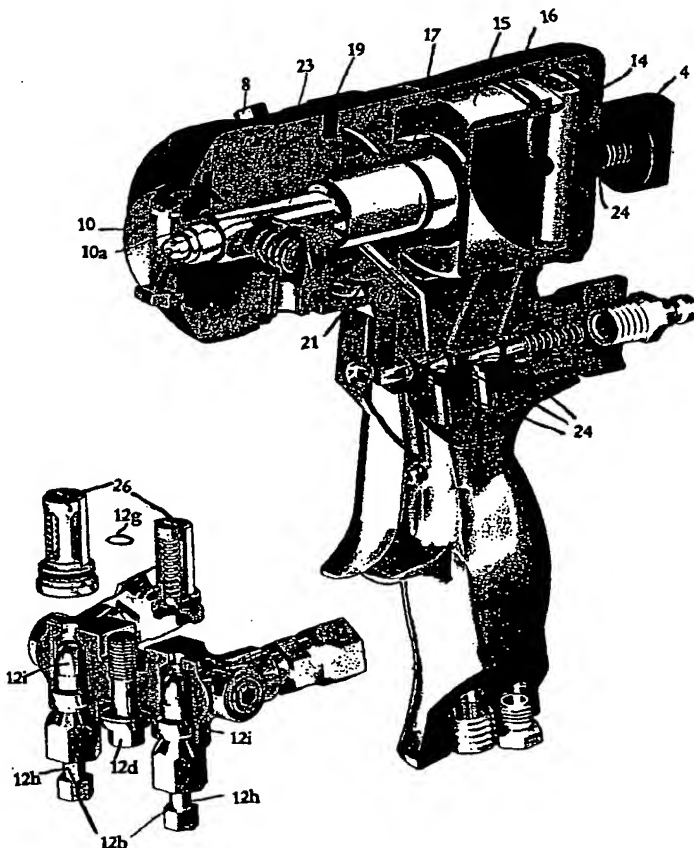
[US/US]; 9124 Cambridge Avenue North, Brooklyn Park, MN 55443 (US). **SEBION, Michael** [US/US]; 13420 Gull Court, Apple Valley, MN 55124 (US). **ANDERSON, Richard** [US/US]; 10111 103rd Place, Maple Grove, MN 55369 (US). **LINDER, Peter** [US/US]; Box 291, North Branch, MN 55056 (US). **PELLIN, Christopher** [US/US]; 13034 14th Avenue, Burnsville, MN 55337 (US). **WEINBERGER, Mark** [US/US]; 8011 Eastwood Road, Mounds View, MN 55112 (US). **RICHTER, Mark** [US/US]; 401 County Road MM, River Falls, WI 54022 (US).

(74) Agent: **FARROW, Douglas**; Graco Minnesota INC., 60 11th Ave. N.E., Minneapolis, MN 55413 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,

[Continued on next page]

(54) Title: PLURAL COMPONENT SPRAY GUN FOR FAST SETTING MATERIALS



(57) Abstract: A plural component spray gun (1) is designed for spraying quick setting materials such as foams, polyurea and the like. Towards this end, the gun (1) is designed so as to be easily serviceable with a minimum of tools. For example, the side seal cartridges (18) and (20) may be installed and removed without tools by removing the retaining ring (9) and then extracting them from the fluid housing (11). Those cartridges (18) and (20) are easily disassembled and cleaned. Similarly, the fluid housing (11) may be removed from the handle/body (1) by unscrewing the lock ring (7) by hand.

WO 2004/037429 A3



MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT,  
RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,  
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:  
17 June 2004

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/33422

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B05B 1/28

US CL : 239/296, 290, 419, 426

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 239/296, 290, 419, 426

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2,780,496 A (ASBECK et al) 05 FEBRUARY 1957 (05.02.1957), see the entire document.	1-15
Y	US 4,760,956 A (MANSFIELD) 02 AUGUST 1988 (02.08.1988), see the entire document.	1-15
Y	US 6,264,113 B1 (DINGLER) 24 JULY 2001 (24.07.2001), see the entire document.	1-15



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

Date of the actual completion of the international search

14 April 2004 (14.04.2004)

Date of mailing of the international search report

06 MAY 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Dinh Q Nguyen

Telephone No. 703-305-0248

*Sheila H. Velez*  
Patent Specialist  
Tech. Center 3700